Suitability studies of Kirana Hills aggregate as sub base material at Lahore Ring Road, Northern Phase, Pakistan

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Abstract

The selection of a good quality aggregate plays a fundamental role in road construction projects. Engineering properties of road material implicate a deep impact on aggregate performance. Properly drained and compacted granular sub base material is used between sub-grade and base-course for flexible pavements. Studies were carried out on northern loop (31° 27′ 55″N, 74° 13′ 44″E to 30° 27′ 77″N, 74° 23′ 06″E) of Lahore Ring Road which is a high speed orbital motorway of 85 km length around Lahore city. Various laboratory tests were performed to assess the suitability of Kirana Hills quarried aggregate to be used as sub-base material at the project. Efforts were made to estimate the parameters of strength, durability, particle disintegration, compaction and impact of static load on aggregate. Twenty aggregate samples were subjected to the suitability analysis. Values of Los Angeles Abrasion Test (16%), Soundness Test (7%), Specific Gravity Test (2.82), Water Absorption Test (0.60%), Aggregate Impact Value Test (8%) and California Bearing Ratio Test (70%) indicate that Kirana Hills aggregate can satisfactorily be used as sub-base material for the very project.